In the claims:

For the Examiner's convenience, all pending claims are presented below with changes shown.

1. (Currently Amended) A method comprising:

receiving content from a host device for transmission via two or more tones in a multicarrier communication channel from two or more antennas;

multiplexing elements of the received content among at least a subset of the two or more antennas; and

interleaving the multiplexed elements across multiple tones of the multicarrier wireless communication channel on at least a subset of the two or more antennas to generate a signal for transmission from the at least two or more antennas, wherein the received content is coded bits and the interleaving element comprises tone interleaving and adjacent or nearly adjacent coded bits on each of the antennae are mapped to nonadjacent subcarriers and wherein the interleaver depth determines how many tones separate adjacent coded bits, the separation between adjacent coded bits being a function of a coherence bandwidth of the channel.

2. (Canceled)

3. (Previously Presented) A method according to claim 1, wherein the bits are coded using any of a number of codes including one or more of a convolutional code, a low

density parity check (LDPC) code, a trellis code, a turbo code, a Reed Solomon code, and a Bose-Chaudhuri-Hocquenghem (BCH) code, or punctured representations thereof.

4-5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) A method according to claim 1 ~~5~~, wherein the separation between adjacent coded bits is proportional to a length of channel impulse response in time.

8. (Currently Amended) A method according to claim 1 ~~5~~, the element of tone separation comprising:

adaptively determining interleaver depth based, at least in part, on an observation of a length of a channel impulse response in time.

9. (Currently Amended) A method according to claim 1 ~~5~~, wherein the adjacent bits are separated by four (4) tones.

10. (Currently Amended) A method according to claim 1 ~~5~~, the interleaving element further comprising:

quadrature amplitude modulation (QAM) interleaving, wherein adjacent coded bits are mapped alternately onto less and more significant bits of a QAM constellation to reduce long runs of low reliability bits.

11. (Original) A method according to claim 10, further comprising:

mapping the interleaved coded bits to QAM symbols.

12. (Original) A method according to claim 11, the mapping element comprising:

mapping a number of bits to QAM symbols, wherein the number of bits is based, at least in part, on a type of modulation employed by a transmitter of the generated signal.

13. (Original) A method according to claim 12, wherein the number of bits is one of a group consisting of 1, 2, 4 or 6 bits, which are converted into complex numbers representing QAM constellation points.

14. (Original) A method according to claim 13, wherein the conversion to complex numbers is performed according to Gray coded constellation mappings.

15. (Original) A method according to claim 11, further comprising:

performing a cyclic shift of the QAM symbols on each antenna with respect to the other antennae.

16. (Original) A method according to claim 15, wherein the cyclic tone shift from antenna to antenna may be greater than 1.

17. (Original) A method according to claim 15, wherein the cyclic tone shift from antenna to antenna is adaptive with spatial correlation, wherein the more correlated the fading on different antennas, the greater the tone shift from antenna to antenna.

18. (Original) A method according to claim 15, the performing element comprising:

detecting that adjacent or almost adjacent coded bits are mapped to a common tone on different antennas; and

introducing a greater cyclic shift between the coded bits.

19. (Original) A method according to claim 15, the performing element comprising:

detecting that the number of transmit antennas (Mt) is greater than 1, and expanding the coded sequence to provide an Mt longer code sequence prior to interleaving and performing the cyclic shift.

20. (Previously Presented) A method according to claim 1, the interleaving element comprising:

quadrature amplitude modulation (QAM) interleaving, wherein adjacent coded bits are mapped alternately onto less and more significant bits of a QAM constellation to reduce long runs of low reliability bits.

21. (Original) A method according to claim 20, the interleaving element further comprising:

tone interleaving, wherein adjacent coded bits on each of the antennae are mapped to nonadjacent subcarriers.

22. (Previously Presented) A method according to claim 1, further comprising:

mapping the interleaved coded bits to (quadrature amplitude modulation ) QAM symbols.

23. (Cancelled)

24. (Previously Presented) An apparatus comprising:

a diversity agent, coupled with a transmitter, to receive content from a host device and multiplex elements of the received content among at least a subset of two or more antennas and to interleave the multiplexed elements across multiple tones of a multicarrier wireless communication channel to generate a signal for transmission from the two or more antennas wherein the diversity agent comprises a tone interleaver, to map adjacent or nearly adjacent coded bits of the received content to nonadjacent subcarriers of the multicarrier wireless communication channel and wherein the separation between adjacent coded bits is a function of a coherence bandwidth of the channel.

25. (Original) An apparatus according to claim 24, further comprising:

a transmitter, coupled to the diversity agent, to convert the multiplexed and interleaved content from the diversity agent and convert it in to a time domain representation

before selectively directing the time domain content to the two or more antenna(e) for transmission to a remote device.

26-27. (Cancelled)

28. (Previously Presented) An apparatus according to claim 24, wherein the separation between adjacent coded bits is proportional to a length of channel impulse response in time.

29. (Previously Presented) An apparatus according to claim 24, wherein the tone interleaver adaptively determines interleaver depth based, at least in part, on an observation of a length of a channel impulse response in time.

30. (Previously Presented) An apparatus according to claim 24, the diversity agent further comprising:

a quadrature amplitude modulation (QAM) interleaver, responsive to the tone interleaver, to alternately map adjacent coded bits onto less and more significant bits of a quadrature amplitude modulation (QAM) constellation to reduce long runs of low reliability bits.

31. (Original) An apparatus according to claim 30, the diversity agent further comprising:

a QAM mapper, responsive to the QAM interleaver, to map the interleaved content to QAM symbols.

32. (Original) An apparatus according to claim 31, wherein the QAM mapper coverts a group of bits to complex numbers representing QAM constellation points.

33. (Original) An apparatus according to claim 32, wherein the group of bits consists of 1, 2, 4, or 6 bits based, at least in part, on the type of modulation employed by the apparatus.

34. (Original) An apparatus according to claim 24, the diversity agent comprising:

a quadrature amplitude modulation (QAM) interleaver, responsive to a tone interleaver, to alternately map adjacent coded bits onto less and more significant bits of a quadrature amplitude modulation (QAM) constellation to reduce long runs of low reliability bits.

35. (Previously Presented) An apparatus according to claim 24, the diversity agent comprising:

a quadrature amplitude modulcation (QAM) mapper, responsive to a QAM interleaver, to map the interleaved content to QAM symbols.

36. (Original) An apparatus according to claim 35, further comprising:

a cyclic prefix element, to dynamically introduce a cyclic shift into the QAM symbols from one antenna to another.

37. (Original) An apparatus according to claim 36, wherein the cyclic tone shift from antenna to antenna may be greater than 1.

38. (Original) An apparatus according to claim 36, wherein the cyclic tone shift from antenna to antenna is adaptive with spatial correlation, wherein the more correlated the fading on different antennas, the greater the tone shift from antenna to antenna.

39. (Original) An apparatus according to claim 36, wherein the cyclic prefix element determines whether adjacent or almost adjacent coded bits are mapped to a common tone on different antennas, and selectively introduces a greater cyclic shift between the coded bits based.

40-51. (Cancelled)